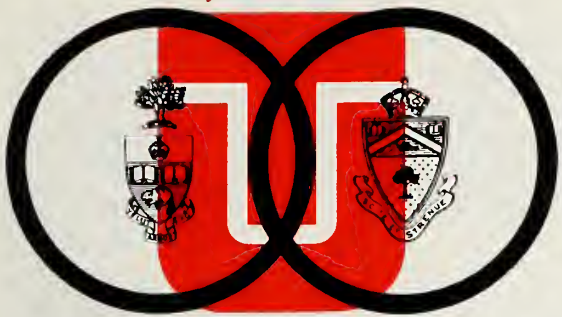


Sesquicentennial



1827-1977

ENGINEERING ALUMNI NEWS

UNIVERSITY OF TORONTO

FACULTY OF APPLIED SCIENCE AND ENGINEERING

VOLUME 24

• NUMBER 1

• JANUARY, 1977

JUNE IN JANUARY



The St. George Street entrance to the Galbraith Building is now flanked by the relocated S.P.S. frieze and the Centennial sculpture, "BECCA'S H". In the enthusiastic gathering of June 5, 1976, were many members of the Class of 2T6 come to celebrate their golden anniversary. Shown in the platform party (L. to R.) are Oscar Marshall, Leonard Grime, Spencer Clark, Gordon Slemon, Dean Bernard Etkin, Sculptor Robert Murray and Paul Walters. Standing by the sculpture are Roy Gross (3T5) and Walter Amos (0T6) (— an alumnus for 70 years!). The Lady Godiva Memorial Band and the Skule Cannoneers provided "sound assistance".

On the brilliantly sunny morning of Saturday, June 5, 1976, as a special part of the Alumni Reunion programme, an appreciative group of alumni, students, staff and spouses gathered in front of the St. George Street entrance to the Galbraith Building to participate in a dual ceremony of presentation to the Faculty. The proceedings were under the chairmanship of Professor G. R. Slemon (Electrical Engineering), co-ordinator of the whole project.

To commemorate the 50th anniversary of its graduation, the Class of 2T6 had arranged for incorporation, into the north wall of the entrance porch, of one of the terra-cotta frieze panels which had originally been part of the architectural decoration over the tower doorway of the S.P.S. building. An accompanying bronze plaque gives the appropriate explanation and happily brings into permanent public awareness an important bit of our historical heritage. Professor Emeritus Oscar J. Marshall (Civil Engineering), Vice-President of 2T6, made the presentation on behalf of the Class and had on display an enlarged colour photograph showing the frieze as it appeared in its former position in the S.P.S. building.

The second presentation involved the impressive abstract sculpture in steel which had been erected on a special foundation beside the street line and just south of the entrance pavement. The acquisition of this sculpture was made possible by a group of alumni and friends of the Faculty who were motivated to bring into being a distinctive and tangible commemoration of the Centennial of the Founding of the Faculty. This undertaking benefited greatly from the dedicated leadership of Mr. H. Spencer Clark (2T4) who, in this and many other projects, has given abundantly of his time and substance to collect, preserve and display noteworthy examples of the physical embodiment of our heritage in arts, crafts, architecture and engineering.

After introducing the members of the platform party, Professor Slemon called first on Professor Marshall and then on Mr. Clark to make the presentations. These were acknowledged in turn by Dean Bernard Etkin, who noted that in each case he was given

the opportunity of day-by-day observation from his office window. In the office which he had at one time occupied on the second floor of the S.P.S. building (the same room that had accommodated the first Dean, John Galbraith), he could easily look out and see the frieze just a few feet away — and in the Dean's office in the Galbraith Building, he could now readily perceive and appreciate the commemorative sculpture. The morning's proceedings were concluded in style with offerings from the Lady Godiva Memorial Band and the ceremonial firing of the Skule Cannon — after which the assembly dispersed to the special luncheons which had been scheduled.

The texts of the two presentation speeches contain much of historical value and the Editors are pleased that there is, at last, space available for quotation in full. Grateful acknowledgement is here given to the many persons who assisted in the involved schedule of operations which had to precede the formal presentations. In addition to those named elsewhere in this report, the following are deserving of individual mention because of the special responsibilities undertaken: Concrete and steel installation: Professor K. A. Selby and Mr. Gordon Ezra (both of Civil Engineering); Frieze installation: Assistant Dean Martha Leitch and Mr. John McNeil (Physical Plant); Bronze plaques (design, expediting of manufacture and installation); Professor L. E. Jones (Mechanical Engineering); Toronto agent for the sculptor, Mr. Robert Murray; Mr. David Mervish. It is of interest to report that the surface of the sculpture foundation has benefited from the "Tapecrete" process (now patented and widely licensed) developed by associates of our Systems Building Centre — the same process which made possible the Faculty's fabulous concrete canoes, incredibly light in weight and superior in speed and seaworthiness.



Engineering Alumni News

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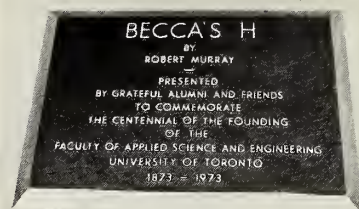
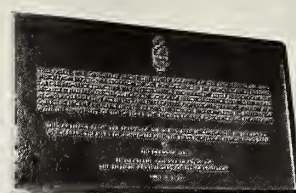
President G. R. F. Gross
Secretary J. T. Horn

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Chairman — Steve Field

Co-Chairman — Mike Cox

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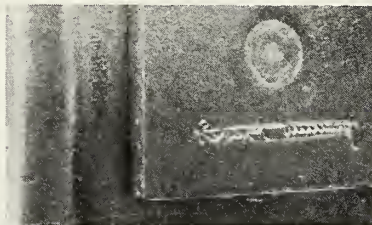


THIS FRIEZE WAS ORIGINALLY ABOVE THE TOWER DOORWAY OF THE ENGINEERING BUILDING WHICH FROM 1877 TO 1966 STOOD ON THE SITE NOW OCCUPIED BY THE MEDICAL SCIENCES BUILDING. THE OLD RED-BRICK STRUCTURE WAS AFFECTIONATELY KNOWN AS "THE LITTLE RED SCHOOL HOUSE" BECAUSE IT HAD BEEN ERECTED TO HOUSE THE SCHOOL OF PRACTICAL SCIENCE. THIS WAS ESTABLISHED BY ONTARIO LEGISLATIVE ACT IN 1873 AND FIRST OFFERED PROFESSIONAL TRAINING WHEN THE NEW QUARTERS BECAME AVAILABLE IN 1878. BY 1906 THE SCHOOL HAD COMPLETED ITS INTEGRATION WITH THE UNIVERSITY OF TORONTO AS THE FACULTY OF APPLIED SCIENCE AND ENGINEERING.

THIS ARTIFACT FROM THE FABRIC OF S.P.S. HAS BEEN INCORPORATED IN THE EDIFICE WHICH BEARS THE NAME OF JOHN GALBRAITH, THE FIRST PROFESSOR, PRINCIPAL AND DEAN, BY

THE CLASS OF 2T6

IN GRATEFUL COMMEMORATION OF
THE FIFTIETH ANNIVERSARY OF ITS GRADUATION
JUNE 3, 1976



Details:
Frieze montage.
Bronze plaques.
Sculptor's signature (south rear of sculpture).



Dean Bernard Etkin and (L. to R.) Mrs. Etkin,
Oscar Marshall, Leonard Grime,
Spencer Clark, Gordon Stemon.

Oscar Marshall

Spencer Clark



PRESENTATION OF FRIEZE

Mr. Chairman, Dean Etkin, Members of the Faculty, Representatives of the Engineering Alumni Association, Ladies and Gentlemen:

It is an honour and a special privilege for me to participate in this unique ceremony on behalf of the class of 2T6 School. On this occasion, we are celebrating the fiftieth anniversary of our graduation in engineering, June 3, 1926. Representing our Class at this time would normally be the privilege of our President, Leonard Grime, but he wanted me to do it because I had been a professor here for some years.

As many of you know, the School of Practical Science was founded by Ontario Statute in 1873. Formal instruction in professional engineering began in the fall of 1878, when occupancy became available in the School of Practical Science building which had just been erected on the University of Toronto campus.

Ten years later the time had come to put S.P.S. on a broader basis, including plans to introduce the practical or laboratory method of teaching in all departments. To take full advantage of current experience in these matters, the Minister of Education, the Hon. G. W. Ross, and the Professor of Engineering, John Galbraith, visited several of the leading educational institutions in the eastern United States. Following these visits, plans were completed for the construction and fitting-up of a very substantial extension to the original School building.

The new edifice was begun late in 1889 but the change in structure was not limited to masonry and timber. During that year further branches of engineering were added to the curriculum, the School was affiliated to the University, John Galbraith was appointed the first Principal of the School and, as such, Chairman of the newly formed Council. The Calendar for 1891-92 proudly displayed for the first time a handsome full-page engraving of the completed building as seen from the east. Also in this Calendar, and related to the engineering experimental work made possible through the new laboratory facilities, there was announced the creation of the "Fourth Year" as an optional sequel to the existing three-year Diploma Course.

The designer of the School building and its extension was Kivas Tully (1820-1905), a civil engineer and architect who came to Canada from Ireland in 1844. He achieved considerable eminence in this dual professional commitment and, subsequent to Confederation in 1867, held the appointment of Architect and Engineer of the Ontario Department of Public Works. He undertook the planning and supervision of construction of a great many public buildings.

As affectionate names, "The Little Red Schoolhouse" and "Schoolmen" have persisted for generations, but the augmented School of Practical Science edifice was no longer small as its floor space had been virtually tripled. Particularly when viewed from the east, the building presented an impressive appearance, standing on a rise of ground with its pleasing proportions accented by an imposing entrance surmounted by a lofty and distinctive tower.

The brickwork exhibited superb design and artisanship, particularly in the many window arches, and the dormered roof displayed the special attractiveness of colour-patterned slate. The frieze which you see incorporated here was one of three panels which were part of the tower decoration at about ceiling level of the first storey and this colour enlargement permits us to perceive the frieze as it looked in its original location. For this our grateful thanks go to the foresight of Professor L. E. Jones who has, through the years, been active in recording and interpreting our heritage and our history. We rejoice that in its new resting place the frieze is very much more accessible to viewers than in its original position.

The original S.P.S. building, together with the extensive addition of laboratory facilities, was demolished in 1966 as a part of the building expansion programme of this University. Fortunately, someone had the forethought to preserve the terra-cotta frieze from the east tower. To the best of my knowledge, none of the surviving members of the Class of 2T6 was aware of the existence of this frieze until it was brought to the attention of the Class Executive by Jim Gow. We soon adopted, as our Class Project to commemorate our golden anniversary, the mounting of this artifact in an appropriate place on the Galbraith Building. The result is now before you.

The frieze is made of terra-cotta (literally "baked earth"), wet clay shaped in a mould and then fired in a kiln, a material and technique used from ancient times for both utility and decoration. We do not know who produced the original sculpture but, whoever its creator, the sculpture will repay a close examination — from its graceful sprays of maple leaves, inspired perhaps by the Ontario coat-of-arms, to the central montage of engineering elements of that day. These include the geographer's globe, presumably representing the Earth and its resources, the T-square and dividers of the draughtsman, the gearwheel representing machines and mechanisms, and the pulley typifying power and energy transmission. In the centre we find a wye level — obviously an older model than the ones used by this Class when we were students more than fifty years ago! A century ago this and other surveying instruments were typical tools of the civil engineer. We believe that having this frieze mounted on the Galbraith Building, which was named after John Galbraith, the first Dean of Engineering at this University, forms a very appropriate link between the old and the new.

Accordingly, it is with pride and sincere thankfulness for the memories and traditions of the past that the Class of 2T6 School dedicates the restoration and installation of this frieze to commemorate the golden anniversary of our graduation.

Dean Etkin, please accept this tribute from my classmates. We trust that it will help you and your colleagues to perpetuate the traditions of The Old Red School and the spirit in which this is given.

Oscar J. Marshall (2T6)

PRESENTATION OF SCULPTURE

Mr. Chairman, Dean Etkin, Honoured Guests, Fellow Graduates and Friends:

May I add the thanks of the older graduates, who retain affectionate memories of the original building, to Professor Marshall and the Class of 2T6 for their alertness and initiative in preserving this frieze. It is also appropriate at this time to thank again the Class of 2T3 for saving and re-erecting in the lobby, east of us, the incised lintel stone which graced the main entrance of the original building and proclaimed to all that this was the "School of Practical Science."

Dean Etkin and Professor Slemon have already made reference to the Faculty's Centennial in 1973 and the numerous events which marked that special year. When Dean Ham called for a work of sculpture to commemorate the Centenary in a physical sense, it was a rather open, unrestricted assignment. To assist in the matter the following appropriate members agreed to act with me on the Committee:

Professor Gordon Slemon: initiator of the idea;

Professor Eric Arthur: far-famed "Father Figure" in this City in matters relating to Architecture, Art and History;

Mr. David Horne: Chief Design Partner of Page and Steele, the Architects of the Galbraith Building;

Mr. Steven Field: then President of the University of Toronto Engineering Society.

The procedures and basic decisions of the Committee are set forth in the folder in my hand but, for those who have not read it, perhaps I should give a brief review:

- The location of the sculpture was to be on St. George Street, in the forecourt of the Galbraith Building, the administrative headquarters of the Faculty of Applied Science and Engineering.
- An open design competition was regarded as being too costly.
- After a review of the work of some forty Canadian sculptors, six of the most prominent were selected and asked to make submissions. Those from five were studied and a tentative selection of Mr. Robert Murray was made.
- Dr. Jean Sutherland Boggs, then Director of the National Gallery, Ottawa, was consulted. She indicated her unqualified approval of the Committee's choice and recommended that Professor David Silcox, then of York University, be consulted on the final selection of Mr. Murray's several alternatives.
- Professor Silcox and Mr. Murray met with the Committee on the proposed site and the decision was made for Mr. Murray's work entitled "BECCA'S H".
- The selection was submitted to the Art Committee of the University (Professor Thomas Howarth, then Dean of Architecture, and Professor G. S. Vickers, Professor of Fine Art), who approved the choice.

In our contemporary times there are numerous sculptors who build up and construct rather than mould or carve. Some are representational or symbolic while the works of others are wholly abstract. Within the latter Robert Murray, a Canadian, ranks among the foremost in the world and we are pleased indeed to have him with us today.

His works have been shown in some twenty exhibitions in New York City alone, including the Whitney Museum, Dag Hammarskjöld Plaza, the Guggenheim Museum and the Museum of Modern Art. Private and public galleries, museums and outdoor exhibits have given prominence to his work, from New York and Boston to Los Angeles and San Francisco, from Sao Paulo and Buenos Aires to Montreal, Toronto, Regina, Edmonton and Vancouver, and from Sydney in Australia to Antwerp, Paris and Lausanne in Europe.

Mr. Murray's sculptures are in permanent public collections in Montreal, Ottawa, Stratford, Fredericton, Saskatoon, Edmonton, Vancouver, New York, Washington, Long Beach (California), Swarthmore College (Swarthmore, Pennsylvania), Syracuse and Sydney. Our own Art Gallery of Ontario has two of his pieces, and "BECCA'S H" becomes the first major outdoor work by Mr. Murray in Toronto. The University of Toronto now joins a number of other universities where Mr. Murray's work is prominently displayed on their campuses.

In explanation, Robert Murray has said: "My work is neither representational nor symbolic. It is somewhat more difficult to generalize on its actual meaning except perhaps to say that I am interested in the forces and forms found in Nature-in-the-raw. I attempt to bring out feelings of tilt and balance, heavy weight delicately poised, by utilizing the stress and span of heavy steel plate, formed in large industrial plants. In this sense, if not in a practical way, I feel a certain kinship to Engineering."

Professor Arthur has made the following comments: "Robert Murray's sculpture deals with planes in steel in brilliant colour. Others are working in the same field—he happens to be the best. In recommending Murray's work for the St. George Street Site, we felt it had so many merits related to Engineering—precision, structure, clarity and the material itself."

In raising the necessary funds the Committee engaged in a very limited, low-key financial campaign since we did not wish to conflict with other donations to the University, especially in view of the larger goal which is under way. I must at this time express our very warm thanks to all the donors who helped make this acquisition possible, and the deep appreciation of the Committee and the Faculty, that this outstanding work is here to commemorate the great contribution in Canada, and indeed throughout the world, which has been made by our Faculty of Applied Science and Engineering during its first century.

And so, Dean Etkin, it is with very much pleasure that the Committee and Donors give this work of sculpture to the Faculty, and I now hand to you this Certificate of Conveyance.

H. Spencer Clark (2T4)



Sculpture committee (L. to R.): David Silcox, David Horne, Eric Arthur, Steven Field, Spencer Clark, Robert Murray, Bernard Etkin, Gordon Slemon.

Galbraith Building: St. George Street entrance. The frieze, seen in shadow at the left end, is natural terra-cotta red in colour, whereas the sculpture is painted a deep red.

The L.G.M.B. and the Skule Cannoneers do their stuff!

K. A. Selby, L. E. Jones and Gordon Ezra demonstrate Newton's Third Law.



FIRE EMERGENCY - SEE OVER



FAREWELL IN FIRE AND FLOOD TO "FAMOUS FLEMING" ON A FATEFUL FEBRUARY FRIDAY

On Friday, February 11, 1977, much of the Sandford Fleming building was gutted by the worst fire to hit the University of Toronto since the University College catastrophe of 1890. Some 40% of Toronto's firefighting equipment was on the scene and took many hours to subdue the blaze. The adjoining Galbraith Building suffered much water damage but is again functional. The enclosed special edition of TOIKE OIKE gives a graphic account of the disaster, and this "emergency margin" will bring you up-to-date on current thinking.

THE DEAN'S PLAN

The Sandford Fleming building had been slated, for many years, to have a complete renovation, as some lecture rooms were virtually unusable. Even with these there was a great space shortage: Geological Engineering and Applied Earth Science, for example, did not even have a departmental office! Instead of rebuilding to the previous format, the Dean suggests that it would be much better to plan for a new and larger structure which could link up with the Galbraith and Wallberg Buildings to form a magnificent Engineering Centre at the University of Toronto. Such a scheme would cost somewhat more than the mere rebuilding, but it would cope now with the pressing space problems.

THE ENGINEERING ALUMNI COUNCIL PLAN

In the meeting on Tuesday, February 15, 1977, the Engineering Alumni agreed to back the Dean's plan as the No. 1 priority.

HOW CAN YOU HELP?

There will be a Restoration Telethon on February 22, 23 and 24, during which period we will be calling as many Engineering Alumni as possible. If you can assist in the telephoning, please call Alumni House (978-2365). Wherever you are, please respond generously to the fundraising appeal, not forgetting the bonus which is described here. To attract students to the book, their

price has been highly subsidized at \$1, as noted on page 4 of the TOIKE.



THE BARGAIN OF A CENTURY!

As announced in a recent Varsity Fund/Update communication, donors of \$20.00 or more to the Engineering Varsity Fund/Update Campaign will receive a complimentary copy of "The Next Hundred Years", the Faculty's publication of the Centennial Lecture Series. In the opinion of the Editor (Prof. L. E. Jones, who has spent most of his "post-retirement leisure" on the project), this book will become a "collector's item" so we give you a summary of its well illustrated 168-page contents to let you appreciate that this offer is indeed a bargain in this century — and that this material, generated through our Faculty's celebration, is indicative of the engineering salvation of the next century.

Contents

Early views of the S.P.S. building.

Editor's Foreword.

Centennial Lecture Series: "The Next Hundred Years"

The biographies alone make inspiring reading but remarkably impressive is the innate scholarship and long-term value of the material presented, not only as personal pronouncements from individual professionals but as a collective proclamation of prime importance to the future welfare of our global society.

Dennis Gabor (Nobel Laureate)

"An Introduction"

Earl Cook (Texas A. and M. University)

"Energy and Power"

Raymond T. Woodhams (U. of T.)

"Materials Engineering"

Gordon N. Patterson (U. of T.)

"Aerospace Engineering"

Edward Llewellyn-Thomas (U. of T.)

"Biomedical Engineering"

Herbert A. Simon (Carnegie-Mellon University)

"Engineering Design"

W. Howard Rapson (U. of T.)

"Environmental Engineering"

Arthur Porter (U. of T.)

"The Education of an Engineer"

Richard Bellman (University of Southern California)

"Cancer, Computers and Control Theory"

Supplementary Material:

Growth of Professional-Engineering Instruction at U. of T.

Historical Items:

The Misses Purity (The Faculty's innovative and prizewinning automobiles)

"An Historic Perspective on a Century of 'School'"
(A brief history of engineering and technology)

James M. Ham

"U. of T. Engineers Celebrate Their Centenary"
(A brief history of S.P.S. and the Faculty)

L. E. Jones

Centres and Institutes associated with the Faculty:

(A brief and illustrated description of each of the Faculty's multidisciplinary investigative units)

Centre for the Study of Materials

Institute for Aerospace Studies

Institute of Biomedical Engineering

Systems Building Centre

Cockburn Centre for Engineering Design

Institute for Environmental Studies

Computer Systems Research Group

Aerial-view map of the St. George Campus, with key to the University's holdings on and off campus.

Photographs of Centennial happenings (not all serious!) on 5 pages.



1977 SESQUICENTENNIALS

JANUARY 7, 1827: BIRTH OF SANDFORD FLEMING

Born in Scotland, Sandford Fleming came to Canada in 1845, and with initiative and talent aplenty, took up a varied and productive engineering career. Draughtsman, surveyor, engraver and lithographer, he conceived and produced plans and maps of great usefulness, wrote scientific papers, co-founded Canada's first scientific society, the (now Royal) Canadian Institute (1849) and designed and produced Canada's first postage stamp (1851). He knew every phase of railroad planning and construction, with nation-building vision and acumen often far ahead of his time, and his prowess and stamina were such that he was simultaneously chief engineer for three separate railway ventures, from Newfoundland to the Pacific. His paper of 1879 paved the way for worldwide standard-time zoning, and his persistence, against unbelievable apathy and indifference, ultimately triumphed in the completion of the British state-owned Pacific cable (1902). He was external examiner in Civil Engineering at Toronto for four years and Chancellor of Queen's University for thirty-five, and was widely known and acknowledged, with a knighthood, honorary degrees and many distinctions and awards.

"GOLD PLATED"

With each gift copy of "The Next Hundred Years", there has been included a small (self-adhesive) book-plate type of inscription label, printed in gold ink from an original hand-lettered by the book editor. The operation of installation has been left to the recipient, not only as a saving in time and office cost, but to permit of satisfying personal preference concerning the location of the inscription in the book. If for any reason you want an extra label, do not hesitate to ask, but please send a stamped self-addressed envelope (to Alumni House) to simplify handling.

ADD-VERSE REACTION

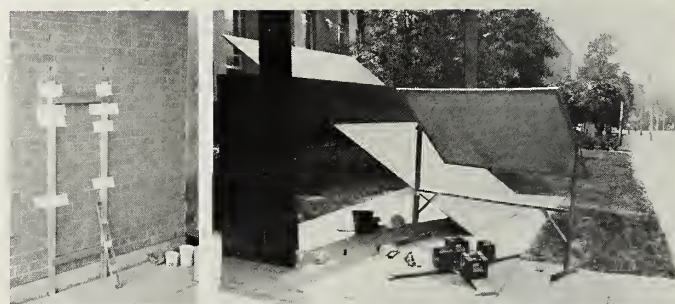
Among the guests at the Spring Reunion Dinner-Dance of June 4 last, were Prof. and Mrs. L. E. Jones, invited on behalf of 5T1 by Nick Monsour, President of the Class Permanent Executive. During his brief after-dinner speech, Nick remarked on Prof. Jones' long-standing facility in producing verse and asked for a possible contribution. Prof. Jones responded immediately with the poem given below, explaining that it was written for his 1967 Centennial address "Canadian Engineering — A Century of Achievement" (ultimately given 11 times) — the poem emerging as a resentfully concerned commentary on the needless loss of the Sandford Fleming commemorative plaque during a building demolition in downtown Toronto. Unpremeditated as was this after-dinner offering, it served to point up the commendable project undertaken by 2T6 in preserving part of the S.P.S. frieze — dedicated the next day, as reported elsewhere in this issue.

THE ULTIMATE MONUMENT

(L. E. Jones)

*Full oft the dreams of man are found
Enshrined in tomb on holy ground,
In humblest dwelling-place, unknown,
Or stately edifice of stone.*

*But think, I beg, how progress moves
And every heritage improves.
No standing still, no dusty past,
Each ancient structure changed at last!
However noble, like as not,
'Twill turn into a parking lot!*



Construction procedures.

This 1966 view of the S.P.S. tower doorway, showing the frieze in its original location, is available through Alumni House as a colour enlargement suitable for framing (8 in. x 10 in., \$5.00 postpaid).

The photographs in this issue were taken by Harold Robinson (Thornhill) and by L. E. Jones (whose colour shots, here converted to black and white, can be readily and inexpensively duplicated, for any reader who wishes copies).

MARCH 15, 1827: CHARTERING OF KING'S COLLEGE, TORONTO

Although its Royal Charter was granted in 1827, King's College did not begin instruction until 1843, due to various religious and political complications. From 1843 to 1849, and again from 1851 to 1856, the institution operated in the former legislative buildings on Toronto's Front Street (between Simcoe and John Streets), and from 1845 to 1851 in a new edifice erected on a site at the east side of Queen's Park — later taken down to make way for the present Ontario Legislative Building. Effective in 1850, King's College was transformed into the secular University of Toronto, with attendant enhancement of its scope of curriculum and breadth of popular appeal — and with subsequent federation of several religious colleges.

Throughout Sesquicentennial Year the University is undertaking an impressive schedule of celebrations, extensive in scope and appropriate to widely varying interests at all levels. Detailed information will be regularly available through the public media — and a calendar of events will be included in the superspecial Sesquicentennial Issue of the "Graduate", to be mailed early in March.